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AN ACCOUNT
OF
THE NEW NORTH WING
AND RECENT ADDITIONS TO
UNIVERSITY COLLEGE, LONDON,
OPENED FEBRUARY 16th, 1881,
BY THE
RT. HON. THE EARL OF KIMBERLEY.



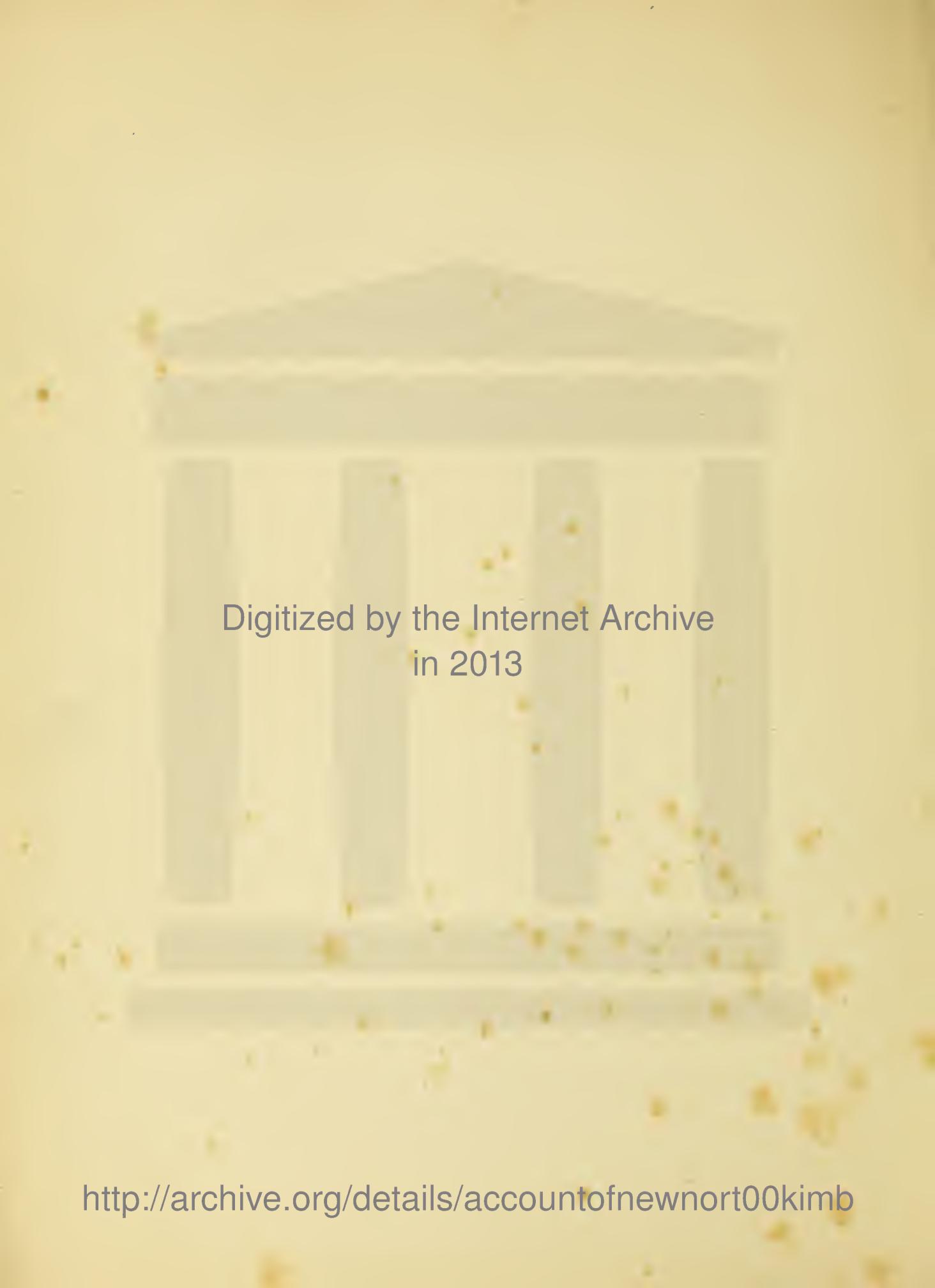
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Messrs. PERRY & REED, of 9, John Street, Adelphi,

Architects to the College.

UNIVERSITY COLLEGE, LONDON.

A very faint, out-of-focus background image of a classical building, possibly a temple or a large library, featuring four prominent columns and a triangular pediment. The building is rendered in a light beige or cream color, blending with the overall aged appearance of the page.

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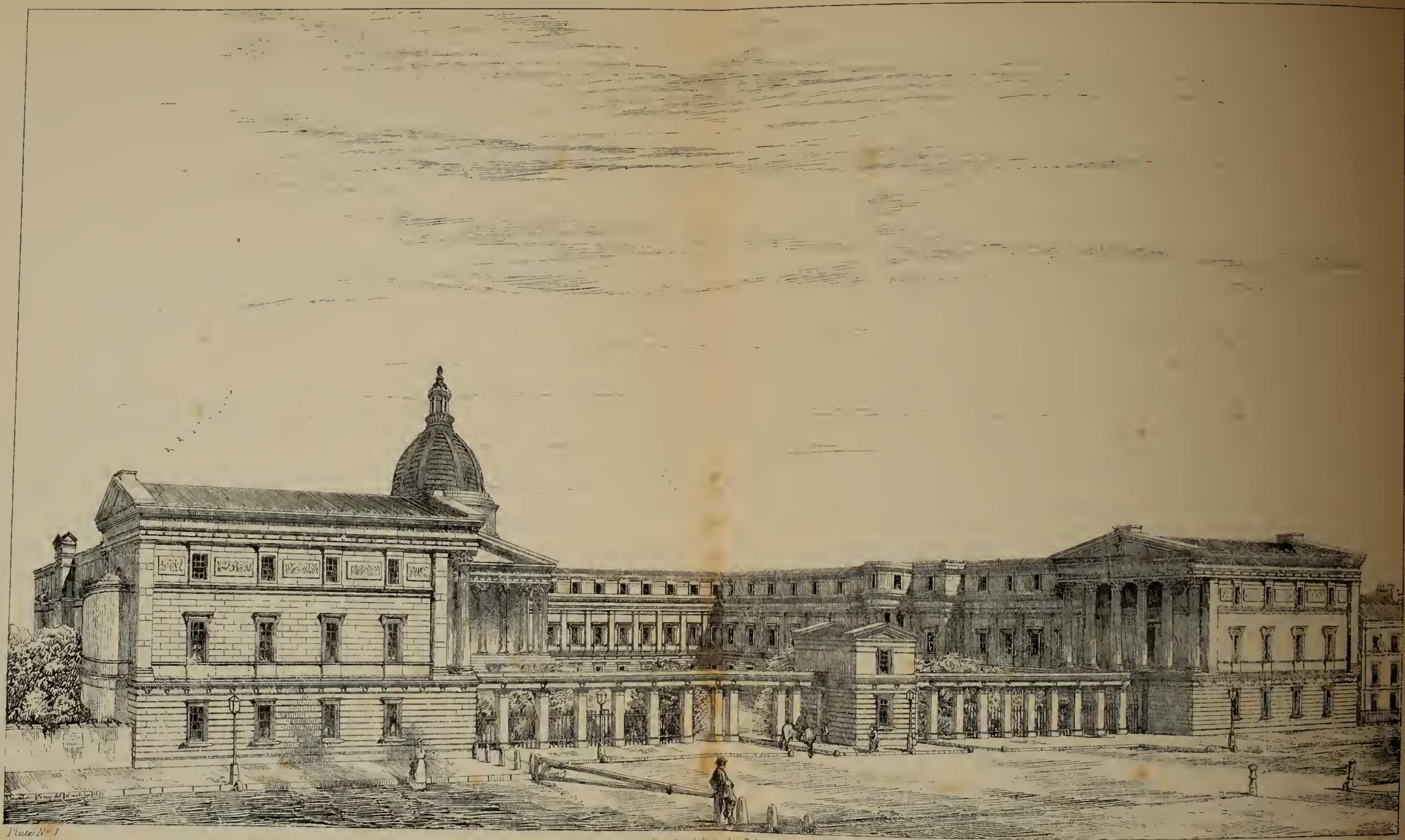


Plate No 1

J. M. Photo Lith. London E.C.

FRONT

UNIVERSITY COLLEGE LONDON.
PROPOSED COMPLETION OF QUADRANGLE.

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DRYDEN PRESS :
J. DAVY & SONS, 137, LONG ACRE, LONDON.

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UNIVERSITY COLLEGE, LONDON.

UNIVERSITY COLLEGE, LONDON, was founded in the year 1826, and opened on Foundation October 1st, 1828, under the title, at first starting, of "THE UNIVERSITY OF and Con-stitution of LONDON." The Institution was incorporated as "UNIVERSITY COLLEGE, LON- the College. DON," by Royal Charter, dated November 28th, 1836; the present University of London being about the same time founded and endowed by the State as an examining, and not a teaching, University, with the power of conferring degrees. This Charter was superseded in 1869 by an Act of Parliament, whereby the College was re-incorpo-rated with additional powers and divested of its proprietary character. The purpose of the College, as expressed in the Act, is "to afford, at a moderate expense, the means of education in Literature, Science and the Fine Arts, and in the knowledge required for admission to the medical and legal professions; and in particular for so affording the means of obtaining the education required for the purpose of taking the degrees now or hereafter granted by the University of London."

Under the original deed of settlement a capital was raised amounting to £153,600; by means of which the land was purchased whereon the College now stands, and the central range of the existing buildings erected, after the designs of the late William Wilkins, Esq., R.A. Since its opening the Institution has been carried on as a place of the highest or University education, literary, scientific and professional; and it differs from a University, to which title the distinction of its professors, the variety of its teaching and the number of its students might fairly entitle it, only in the circumstance that, by the plan finally adopted in its constitution, the examining for and conferring of the degrees towards which its studies are directed have been committed to a University independently constituted, the exami-nations of which are open to the whole British Empire. In the Honour Lists of the University of London the students of University College have held a place second to that of the students of no other educational institution whatever.

The original Faculties or divisions of the College Professoriate were two in number—those of Arts and Laws including Science, and of Medicine. In the year 1870

the Scientific Classes were constituted a separate Faculty of Science : but being in its intention and constitution undenominational, the College has no Faculty of Theology.

The Government and Property of the College are vested in the Body Corporate, which consists of, first, Governors, representing the original founders and former proprietors ; secondly, Fellows of the College, elected from among old students who have passed a distinguished examination for a University Degree ; and thirdly, Life Governors, appointed on special grounds, of services rendered, or of qualifications for promoting the objects of the Institution. The superintendence is in the hands of a President and Council, appointed by the members of the Corporation. The Council is aided with advice by the Senate or assembly of the Professoriate. The power of reinforcing both the Corporation and the Council by the introduction of persons previously unconnected with the College, who are qualified to assist its work, or have shown their interest in its welfare, has been largely exercised.

Progress of the College.

Under this constitution and under the guidance of the distinguished men who have in past years given to it largely of their time and energy and means, among whom must be mentioned the names of Brougham, Grote and Goldsmid, the usefulness of the College has constantly grown and become recognized by an increasing circle of supporters.

To meet this increase large sums have been from time to time expended on the College in the way of adaptation and improvement ; and a considerable part of such expenditure has been provided out of annual surpluses of income.

In 1833 the University College or North London Hospital was founded, by voluntary contributions, to supply the Medical Faculty with a practical School of Medicine and Surgery, and the district with a much-needed charity. The Hospital is the property of the College, and is managed by a joint Committee of Subscribers, Members of the Council, and of the Medical Staff. In 1841 the Birkbeck Chemical Laboratory was erected, partly out of a gift from the subscribers to the Birkbeck Testimonial. But the principal additions which had been made to the Buildings of the College since its establishment, until the recent erection of the North Wing, were those designed for the special purposes of the Boys' School and the Slade School of Fine Art, the former of which occupies the portion of the South Wing already built. Towards the building of this School the College received many munificent benefactions ; especially £6,000 from Samuel Sharpe, Esq., £3,000 from the late John Pemberton Heywood, Esq., and £1,000 from an anonymous benefactor. To the erection of the Slade School £5,000 was contributed by the executors under the will of the late Felix Slade, Esq. Important as these additions are, they contributed nothing to the accommodation for students in the University Faculties, except in so far as the erection of the south wing set free a portion of the central building which had been temporarily devoted to the School.

The Recent Addition.

On the 9th of July, 1878, the completion of the fiftieth year of University College, London, was celebrated by a festival in the College grounds. Earl Granville who then presided, honoured the College by laying the first stone of the buildings which are now ready for use.

These new buildings, which form the north wing of the College, with the Chemical annexe in the rear, were carried out, from designs previously prepared by Professor Hayter Lewis, under the superintendence of Messrs. Perry and Reed, of No. 9, John Street, Adelphi, Architects to the College, by Mr. W. Brass, the Contractor. On plate No. 14 will be found a view of the façade.

The new buildings provide improved and extended accommodation for the Slade School of Fine Art; and the Fine Art School is thus enabled to give up some rooms which it formerly occupied. The rooms thus set free on the first floor have been applied to a considerable extension of the space allotted to Zoology and Comparative Anatomy. The whole upper floor of the north wing has been specially prepared for the study of Physiology. On the ground-floor and basement, Chemistry is provided not only with space in the north wing itself, but also with a large annexed laboratory on the ground behind. Rooms set free in the centre of the building by these new arrangements have been so dealt with as to secure proper accommodation for the School of Engineering and a Laboratory for Practical Botany.

The following details will show more precisely what has been gained on behalf of higher education by the new addition to the buildings of University College, London.

In the central portion of the newly finished wing of University College the ground floor, the first storey and part of the basement have been appropriated to the Slade School of Fine Art.

This School owes its origin to a bequest of the late Mr. Felix Slade for the founding of a Fine Arts Department in University College. Somewhat similar bequests, though to a smaller extent, were made by him to the Universities of Oxford and Cambridge, by which Mr. Ruskin and Sir Digby Wyatt (since succeeded by Mr. Richmond and Mr. Sidney Colvin) were severally appointed as Professors, their duties being to give series of Lectures to the students. By the Council of this College, however, it was considered that the terms of the Bequest as relating to it could be thoroughly complied with only by founding a School in which the Fine Arts should be taught practically.

For this purpose the first part of the North Wing was erected, containing Studios for Drawing, Painting and Modelling from the Life and from Casts of Antiques, with arrangements for the accommodation of female as well as male Students.

The cost of building was defrayed partly from a portion of Mr. Slade's bequest and partly by various friends of the College, among whom may be mentioned Mr. Samuel Sharpe and Mr. J. P. Heywood.

A certain sum out of the bequest having been devoted to the endowment of a Professorship for this School, the Council elected Mr. E. J. Poynter, R.A., as the first Professor. The new building having been furnished with casts, seats, easels, and other necessary objects, was opened for the reception of Students and for working purposes on the 9th October, 1871.

Mr. Poynter expended much thought and energy in devising rules and regulations, and organizing the details of the hours and mode of study to bring the School into working order.

A large number of Students, male and female, soon joined the School ; and the yearly Report at the end of the First Session showed an attendance of 122 Students at the morning and evening schools, giving evidence, in the words of the Report, that the School had supplied a real want. As in subsequent years the numbers continued to increase, it was found needful to abolish two partial courses of study which admitted to the School three days in the week, and to receive only Students who would attend the full daily course, thus reserving the School for those Students who wished for a more complete education in Art.

After directing the Slade School with great success for five years, Professor Poynter, in the Session 1875-1876, accepted the office of Superintendent of the Art Department and Government Art School at South Kensington and tendered his resignation of the Slade Professorship. On his recommendation, supported by the highest testimonials from several of the most eminent artists in England, among whom was the present President of the Royal Academy, Sir Frederick Leighton, the Council elected Mr. Alphonse Legros as his successor.

Under Professor Legros the School has been no less successful in its career than in his predecessor's time ; and want of space made it necessary to refuse many applicants for admission. In the new quarters assigned to it this deficiency has been in some measure supplied ; and there is now sufficient easy accommodation for 140 students. .

The entrance, which is situated in the hemicycle or semicircular projecting part of the North Wing, leads at once into a spacious corridor extending to the right and left, the staircase leading to the upper story facing the entrance.* At one end is a staircase leading to the ladies' refreshment and cloak-rooms and lavatory, and, farther on, to those of the male students and also to a large life studio, forming part of the old building, and now generally reserved for the male class.

On the ground floor, to the right of the principal entrance, is the library and lecture-room, 40 ft. 9 in. long by 35 ft. wide and 16 ft. high, entered from the corridor. In this room are delivered the lectures on Anatomy, Perspective, &c. during the time appropriated to them. At other times the room is used for drawing from the Antique and copying Photographs from drawings by the old masters. The library contains a very valuable collection of old prints and drawings, presented to the school by the late Mrs. Grote, the widow of the former President of the College, also a number of the best modern works on Art, purchased out of a fund subscribed in memory of the late Mr. Edwin Wilkins Field, whose interest in all matters connected with Art is well known. There are other works also, of a similar nature, presented to or purchased by the College.

The room serving as an office for the Professor and his assistants communicates with the lecture-room, and overlooks on the other side, by a balcony, the large life studio above referred to.

A room about the size of the lecture-room, on the same floor, is to be allotted to

* *Vide* Plates Nos. 2 and 3.

the Sculpture Class, should there be any demand for one, and in the meantime is used for drawing and painting from the Antique.

The staircase already mentioned, facing the entrance, after a few steps in front, branches off to the right and left, leading to the upper corridor, which corresponds to that on the ground floor. The hemicycle here fronting the quadrangle of the College and the whole length of the corridor, with the pillars supporting the upper floor and the arches at the farther end, are, when seen from a point of view on the right-hand side, very effective. From this corridor is entered the Life-room of the ladies' or mixed class, which is a large well-lighted room, 40 feet 4 in. by 35 feet, and 19 feet in height, facing the north. Here also are the Professor's studio and the Antique-room, where are many casts of the best antiques, one of Michael Angelo's slave in the Louvre, a rare cast of a torso of Venus from a statue found in the gardens of Sallust in Rome, and one of the Hermes lately discovered at Olympia. These two very fine casts were presented to the school by Mr. F. Marcet, and another of great beauty (a torso of Menelaus) was presented by his son-in-law, M. Duval, of Geneva.

Professor Legros has established a class for etching, with all necessary appliances for carrying on the process, in an unoccupied part of the New Wing, communicating with the upper corridor. The plates are prepared, etched, and bitten in, and proofs taken on the spot, the Professor having set up a press for the purpose. The Plans, &c., of this Department will be found on Plates No. 2 and 5.

This Department has received additional space through the erection of the Department of new wing, though only the Professor's private laboratory actually forms part of the Zoology and Comparative Anatomy.

The Department now consists of (1) Lecture Theatre, (2) North Museum, (3) South Museum and Aquarium Room, (4) Professor's Private Laboratory, all on the first floor, occupying the north-east angle of the College building, and of rooms on the second floor contiguous to the Lecture-Theatre to which some of them form a gallery. The rooms on the second floor are (5) The Large Practical Class Room, (6) The Attendant's Gallery, with access to roof, (7) The North-west Laboratory, (8) The North-east Laboratory, (9) The Assistant's Laboratory and Store-room.

1. THE LECTURE-THEATRE is of considerable dimensions (floor-area of 30 ft. 6 in. by 20 ft. 9 in.), having been used until now both as museum and lecture-room. It penetrates the second floor and is lit by a central skylight. At present it is fitted with seats for eighty students; but can easily be arranged for twice that number. Two side walls of the Lecture-Theatre are provided with large curtain-screens for the display of diagrams (the collection of which, mostly new, numbers over 500), whilst a special arrangement of sliding-boards gives the lecturer no less than one hundred and twenty square feet of black-board on which to draw in coloured chalks in the presence of the class. Special gas-burners are arranged so as to illuminate the black-board and diagram-screens in case of fogs, which would otherwise render graphic teaching impossible.

The Lecture-table is of large size (15 ft. by 3 ft.), in order to afford space for displaying specimens from the museum illustrating the lecture.

2. THE NORTH MUSEUM (with a square area of 49 ft. 10 in. by 41 ft. 9 in.) immediately adjoins the Lecture-Theatre, opening into it by a door in the north-east corner of the former room. A portion of the Zoological Collections are still arranged in the peripheral spaces of the Lecture Theatre; but the crowding and concealment of specimens which has hitherto been unavoidable will be entirely avoided when the larger osteological specimens are removed to the new North Museum. This room, as well as the South Museum, has been fitted with carefully constructed dust-tight show-cases, 10 ft. high and 2 ft. 9 in. deep where placed against a wall, or 3 ft. 6 in. where standing out in the centre of the room.

The Collection has been brought together by gifts from the late and present Professors of Zoology and by the expenditure of a grant of £400 from the Council of the College. It has been specially selected and arranged with a view to teaching the more important facts of Morphology, and contains some exceptionally rare and instructive forms, *e. g.* skeleton of the adult male Gorilla, of the Cape Ant-eater (*Orycteropus*), of the Manatee (*Manatus*), of the Dugong (*Halichore*), of the Long-footed Lemur, of the Tasmanian Wolf (*Thylacinus*), of the Australian Duck-mole (*Ornithorhynchus*), of the Kiwi (*Apteryx*), of the Small Penguin, of the New-Zealand Lizard *Sphenodon* (*Hatteria*), of the fishes *Ceratodus*, *Protopterus*, *Chimæra*, *Heptanchus*, *Cestracion*, besides specimens of all the existing genera of Ganoid fishes, dissections and specimens of the Myxinoids, *Bdellostoma* and *Myxine* and of Lampreys and Lamperns: further, a complete set of several examples of the American Urodele amphibians, Axolotl, *Menobranchus*, *Amphiuma*, *Siren*, and *Menopoma*, besides the Japanese *Sieboldia* and the European *Proteus*. Among the specimens of Invertebrates, the most noteworthy are two well-preserved specimens of the animal (one in its shell) of the Pearly Nautilus, a specimen of the rare *Loligopsis* (*Cheiroteuthis*) *Veraynii*, others of the Australian *Trigonia*, of *Peripatus capensis* and *P. novæ-zealandiæ*, of *Pentacrinus caput-medusæ*, of the jelly-fish, *Charybdæa marsupialis*, &c. Recently executed wax models of the anatomy of the Tape-worms, of the development of *Trichina*, of the development of various Vertebrates, &c., also form part of the collection.

Part of the collection is illustrated by a series of carefully executed drawings, copied (with Professor Huxley's permission) by Mr. Howes from those prepared by him for the Laboratory at South Kensington. It is proposed to enlarge and complete the series of drawings of types and the dissections which they illustrate, as a special feature of the new extension of the Museum.

Whilst only a few additions to the Museum are desirable in the future by way of purchase, it is confidently trusted that old Students and others who may have means of acquiring specimens for the College will do so in order to add gradually to the interest of the collection. The arrangements are now on such a footing that assurance may be felt of specimens being duly cared for.

3. THE SOUTH MUSEUM AND AQUARIUM ROOM (floor-area 43 ft. 3 in. by 44 ft. 3 in.) adjoins the North Museum, and is entered by a door in the south-west corner of the latter. It is lit by three large windows facing south, and on this account has been selected

as the position for a Wardian case, a fresh-water aquarium, and a marine aquarium. The walls are fitted with glass cases for the reception of a portion of the collections.

The marine aquarium consists of an upper and a lower tank, half the water being daily raised from the lower tank to the upper by means of a vulcanite pump, when it is allowed to flow back again into the lower tank, so as to ensure its oxygenation. By means of this aquarium it will be possible to keep many marine forms for study and also for exhibition in illustration of lectures. The fresh water aquarium is provided with a constant stream, and is specially intended for the hatching of fish and the study of the diseases of our river-fishes.

4. THE PROFESSOR'S PRIVATE LABORATORY (floor area 24 ft. by 13 ft. 6 in.) is in the new building adjacent to the North and South Museum. It has a north light, a specially designed work-table, provided with tap and sink, and with a movable glass cover facing the window, walls fitted with glass cases for books and material, and a stove with boiler. There is communication from this room with the Attendant's Gallery on the second floor by means of a speaking tube.

5. THE LARGE PRACTICAL CLASS-ROOM has an area of 50 ft. 3 in. by 23 ft. It is lit from above by numerous sky-lights, which give ample light in fair weather. Twenty-five tables, each 5 ft. 6 in. by 1 ft. 8 in., and 2 ft. 7 inches high are placed in two rows along the room. Each table seats two students, and is fitted with a drawer for the use of each student, and an Argand table-lamp. Glass cupboards to hold the microscopes provided for the use of the class, and other apparatus occupy one wall of the room. A series of taps and two large sinks are fitted in a continuous table-bench along the opposite wall. Fifty students can dissect simultaneously in this room.

6. THE ATTENDANT'S GALLERY (floor area 49 ft. 9 in. by 23 ft.) is immediately adjacent to the large class-room, being actually the South Gallery of the Lecture-Theatre. Formerly the four sides of the gallery surrounding the Lecture-Theatre on the second floor had no windows and were used only as receptacles for lumber. They have, within the last five years, been converted into useful rooms by the cutting of a long skylight for the South Gallery, and of two large windows for the North Gallery. The North Gallery is shut off from the Lecture-Theatre by a wooden partition and divided into two rooms; the South Gallery is still open. It is fitted with glass-door cupboards for containing chemicals and glass, with several tables and a large sink with two taps. From the east end of this gallery a small iron ladder leads through a trap-door to an enclosed area of the flat roof of the Lecture-Theatre. Two large slate tanks with continuous water-supply and waste-pipes are placed here for keeping frogs, freshwater mussels, crayfish, and other animals used by the students of the practical class. This open area (the only one belonging to the Department) is naturally of the greatest importance in several ways, viz. for exposing foul-smelling preparations to the air, for keeping animals, for growing certain plants, &c.

7 & 8. THE NORTH-WEST AND NORTH-EAST LABORATORIES are the two rooms formed by enclosure of the North Gallery of the Lecture-room. They form excellent working-rooms for advanced Students or Assistants of the Professor who may be

carrying out original investigations under his direction. They have areas of 49 ft. 8 in. by 10 ft. 4 in., and are lit by an almost continuous window facing north, and running, therefore, the length of the room. Each is fitted with long window tables, glass-door cupboards, sinks with double taps, and table gas-lamps. Two or, if necessary, three workers, can be comfortably accommodated in either of these laboratories. Each worker has for his use a table-space of 7 ft. by 2 ft. and a separate glass-door cupboard with key. In one of these laboratories a large incubator with internal chamber of 3 ft. by 1½ ft. is fixed, and is permanently maintained by a gas-burner at a temperature of 100° Fahr. It is fitted with three doors, and is of such a size that microscopes can be readily introduced, so that a preparation may be incubated on the stage of the microscope without disturbing the selected point of observation. Each of these laboratories, as well as the Professor's Laboratory, the Assistant's Laboratory, and the large Class-room, is provided with a complete set of histological reagents in glass-stoppered bottles, and also with test-tubes, watch-glasses, Bunsen burners. The stores of these chemicals and glass apparatus are kept in the Attendant's Gallery.

9. THE ASSISTANT'S LABORATORY AND STORE-ROOM is a large room (27 ft. 3 in. by 19 ft. 9 in.) adjacent to the North Gallery. A small portion is boarded off, so as to form a private work-room; whilst the outer space is used for keeping the stores of animals in spirit used by the practical class and for lecture demonstration. In this outer space cases arriving for the Museum are unpacked, and all such rough work is performed as would be injurious to the laboratories or museums on account of the stirring up of dust and dirt. A slate tank with air-tight lid is placed in this store-room for receiving specimens preserved in spirit which are too large for ordinary bottles or jars.

The stores, which are kept in readiness for dissection by students of the practical classes, comprise abundant supplies of the following:—*Sepia*, *Octopus*, *Aplysia*, *Patella*, *Ascidia*, *Petromyzon*, *Myxine*, *Amphioxus*, *Apus*, *Lepas*, *Cymothoë*, *Oniscus*, *Sipunculus*, *Arenicola*, *Alcyonium*, *Cordylophora*, *Limnocodium*, *Vespa*, *Scolopendra*, &c. Other animals such as the Rabbit, Pigeon, Tortoise, Lizard, Frog, Salamander, Skate, Perch, Snail, Slug, Paludina, Whelk, Pond-Mussell, Oyster, Scallop, Crayfish, Cockroach, Earthworm, Riverworm, Leech, Tapeworm, *Hydra*, are usually studied by means of fresh specimens procured by the Attendant.

The Assistant's Laboratory is intended not only as a private work-room for the gentleman who assists the Professor in demonstrating to the practical classes, and in arranging and procuring the material for those classes, but also as an office in which the accounts of the Department are kept, business letters written, and bills filed. Further it is the business of the Assistant to take part in the care of the Museum. An osteological collection is continually subject to injury. Every time that a specimen is removed from the case a certain amount of damage is inevitably caused. This continual damage necessitates continual repair and the most watchful attention. Specimens in spirit are equally subject to incessant deterioration; no means is known of preventing the evaporation of the spirit, which accordingly must be from time to

time renewed. These repairs of museum specimens, and also the preparation of new specimens, dissections, skeletons, &c. are carried on by the Assistant in his private laboratory during such time as he is not engaged in demonstrating to the practical classes. The Plans of this Department will be found on Plates No. 6 and 7.

The whole of the upper floor of the new wing is occupied by the Department of Physiology. This consists of eleven rooms, all of which open into the same corridor and are approached from the exterior by the staircase at the west end of the building, and from the College by the staircase in the north-east corner of the quadrangle.

On entering from the College, we come first to the Lecture-Theatre, which is provided with seats and writing-tables for 170 Students. Its windows look to the north, and are provided with sliding-shutters so arranged that the room can be readily darkened, so as to allow of the display of objects on the screen.

We next enter the large Student's Working-room. This room, which is also lighted by large windows looking northwards, contains separate working-places for 100 Students. Each worker is provided with gas-supply for heat and light, water-supply, and a locker or cupboard for his microscopes, instruments, and other *subsidia*. The seats and tables are in parallel rows facing northwards, each row being three feet above the row in front of it. In this way the light which it receives nearly horizontally from the windows cannot be intercepted. There are convenient arrangements for the access of Demonstrators and attendants to the tables ; so that while each worker is independently provided with all that he requires for his work, he is at the same time under the constant supervision of the Professor and Assistants.

Proceeding along the corridor westward, we enter the Jodrell Laboratory, which is so designated because it was planned in accordance with the wishes of Mr. T. P. Jodrell, who some years ago endowed the Professorship of Physiology in University College, and has lately given further proof of his munificence and of his interest in scientific progress by making similar provision for the study of Zoology.

The Laboratory consists of six rooms, of which three look northwards, the remainder to the south. Of the north rooms, the first (5) is occupied by the Jodrell Professor and his Assistant as a private working-room. Four other rooms are devoted to special branches of physiological work. Thus, one of them is fitted up with appliances suited for chemical researches ; and is in charge of the holder of the Physiological Scholarship, the liberal endowment of which the College owes to the late Professor Sharpey. A second room, called the Mercury room, contains a Pflüger's gas-pump and apparatus for the analysis of gases. A third is devoted to experiments relating to the physical phenomena of muscle and nerve ; and contains, among other instruments, a Pendulum-Myograph, a Thompson's Galvanometer, and other apparatus for investigations in Animal Electricity. A fourth is specially adapted for investigations relating to Respiration, Circulation and Animal Heat.

The sixth room is used for purposes of great importance in a laboratory, viz. as a work-shop, and is provided with a carpenter's bench, turning lathe, and other appliances for making and repairing the simpler kinds of apparatus.

In addition to these rooms, chiefly intended for research, there are two others,

already referred to, which are designed for the accommodation of advanced Students who desire to devote their attention to special subjects of study. One of these is fitted with appliances for studies relating to the mechanical functions of the organism, the other for work in physiological chemistry.

Although not to be compared in point of size and number of rooms with the Physiological Institutes of Berlin, Leipsic, Breslau, Bonn, or Strasburg, this new Laboratory of Physiology has, by careful arrangement of the limited space at the disposal of its projectors, been well adapted for the fulfilment of the two distinct purposes for which the department is intended, namely, (1) to afford to the ordinary learners the opportunity of acquiring the minimum of practical acquaintance with scientific work which is now required of them by the examining boards; and (2) the much more important purpose of providing a place where the real student can meet with the tools and the personal help he wants in his work, and the quiet which is so absolutely necessary to its effectual performance. The Plan of this Department will be found on Plate No. 8.

Department of Chemistry.

The Chemical Department includes laboratories for the study of General and Analytical Chemistry and for chemical research, as well as for the study of Chemical technology and practical instruction in the application of chemical analysis to industrial operations.

The chief Lecture-room is an amphitheatre capable of containing 400 students. In the summer it is fitted up with tables for practical work at elementary analytical operations, and provides accommodation for 120 persons. Contiguous to it is a laboratory for preparing materials and lecture experiments, and also a museum for apparatus and chemical specimens.

A smaller Lecture-room is fitted up with tables suited for writing or for testing operations, and a small cupboard under each table serves to contain test-bottles, &c., which are put away when the tables are to be used by students in a lecture, during which they perform no experiments themselves. There is in this lecture-room accommodation for 80 students.

Adjoining is a Library of chemical books for the use of students.

The new Analytical Laboratory is a lofty hall (74 ft. by 25 ft.) lighted from above.* It contains working-desks sufficient for 50 students, those at one end being fitted up for beginners, and those at the other end for more advanced students, all of them exceedingly spacious and commodious. In the middle of the laboratory are various appliances for general use, such as—(1) A table fitted up for treating substances with sulphuretted hydrogen. Each bottle through which the gas is being passed is surrounded by a glass cylinder, through which there is a powerful down-draught passing. The substance under treatment is conveniently accessible, yet none of the sulphuretted hydrogen can escape into the air of the laboratory. (2) Water-baths heated by steam from a boiler outside. Each evaporating dish is heated by itself in a current of pure and warm air, whilst all the fumes which pass off from it

* *Vide* Plate No. 9.

are drawn directly into a flue without any probability of contaminating the contents of other dishes. (3) Water air-pump and Sprengel pump. (4) General reagents and apparatus. (5) Reservoir of distilled water and tank of hot water.

Opening into the Chief Laboratory is a room of similar construction but of smaller dimensions, viz., 40 ft. by 20 ft. This "furnace-room" contains arrangements for evaporation and distillation, and for fusions, &c. requiring very high temperature.

For evaporating purposes there are a number of stalls of various sizes, so fitted up that an iron dish containing sand, or a porcelain basin, can be heated in each of them by gas, while all the fumes and vapour are drawn off by a powerful flue behind each stall.

For apparatus of various forms and constructions there is a long and wide slate table, so arranged that any apparatus from which noxious fumes are liable to be evolved can be surrounded by a casing, through which the air is rapidly drawn by a powerful flue.

For fusions and calcinations there is a row of furnaces of various constructions mostly heated by gas and with a powerful draught.

For the more special operations of the laboratory there are nine rooms, mostly on the adjoining basement. These include a Professor's research laboratory, room for gas-analysis, balance room, assay room, water-analysis room, with water-baths for evaporation in a current of pure and warm air, combustion-room, spectroscope-room and Professor's consulting-room. A store-room for apparatus and chemicals is on the basement adjoining the laboratory; there are also hat and cloak-rooms and lavatories.

A steam boiler supplies steam for heating purposes and for preparation of distilled water. It draws into a tall chimney-shaft, in which the draught can, when necessary, be increased by a steam blast. The boiler is also fitted with a Giffard injector for working water air-pumps and blowing-fans.

The Technological Laboratory contains ample provision for 25 workers in a lofty room lighted from above. There is a Professor's laboratory adjoining, also furnace-room, consultation-room, balance-room, calculation-room, lavatories, &c. A museum for technological specimens, models, &c. will be provided. The whole of the sinks and drains of this and other departments have been manufactured of white Irish porcelain.

The various applications of the Science of Chemistry to Industrial operations have for years became so extended, and the consequent demand that the purely scientific studies at this College should be supplemented by instruction in one or more branches of Applied Chemistry became so urgent that instruction in such technical knowledge had to be provided.

It is true that the study of Chemistry as a pure science, in conjunction with the study of Physics, Mathematics and other sciences, gives a young man great power in understanding the technical operations of any chemical industry; but it is also true that the *application* of the science to such industry must be studied before a

young man can be in a position to undertake any special technical work. Now this study of the application of the science to any particular industry is better and more quickly acquired under the direction of a competent teacher aided by assistants, ample apparatus and a good consulting-library, than when not so aided, and when constantly interrupted by the daily duties of a factory.

Those whose views on such matters are entitled to the greatest weight are of opinion that the study of Applied Science should follow a careful training in Pure Science, and that both should be given at the same time, the practical portion of the technical training being, of course, given in the workshop or factory. The special Technical Institutions, such as the Polytechnic Schools of Zurich, Berlin, Vienna, the Ecole des Arts et Métiers, the Freiburg Mining School, the School of Mines in London, and the Agricultural College at Cirencester, are examples of institutions set apart for education in some one technical subject. Of late the tendency of opinion in Germany has been rather averse to this system, and many authorities now think it unwise to separate the study of Applied Science from the University. Doubtless this view will grow; for it is not only unadvisable to have a large number of professors teaching to small classes the same branch of Pure Science in various technical institutions, which must necessarily lower the quality of the instruction, a deterioration not altogether removed by government endowments; there are manifest advantages in having Applied Science taught in the same institution where the study of Pure Science is associated with high general culture.

The professors of technical subjects, when surrounded by an atmosphere of intellectual activity in Literature and Science, are not only stimulated by the energy around them, but also profit by the opportunity thus afforded of improving their own teaching from time to time by introducing new views and methods of investigation which are of value to their own special lines of activity. On the other hand, while teachers of Technology thus benefit from the intellectual surroundings of a college engaged in the higher general education, the students of technical subjects benefit by intercourse with students engaged in literature or science from a more general point of view; and they have more opportunity of supplementing the curriculum of study by acquiring a knowledge of a subject which they consider necessary for their special work in after-life.

After a careful consideration of the requirements of technical education, it was decided in 1878 that instruction in Applied Chemistry should form a distinct part of the educational work undertaken by University College, and a Professorship of Chemical Technology was established for that purpose. Chemical Technology now forms a part of the DEPARTMENT OF APPLIED SCIENCE AND TECHNOLOGY recently formed.

In the Prospectus of this Department, Courses of study are set out for the guidance of those who propose to be—

- (1) Metallurgists;
- (2) Alkali, Soap and Manure Manufacturers;
- (3) Glass, Ceramic ware, Cement and Artificial Stone Manufacturers;
- (4) Bleachers, Dyers and Calico Printers;

- (5) Brewers, Distillers, Vinegar Manufacturers, Sugar Refiners and Glucose and Dextrine Manufacturers ;
- (6) Agriculturists ;
- (7) Consulting-Chemists and Public Analysts,

special arrangements being made for other industries in which Chemistry plays an important part.

The Lectures on these subjects occupy two years, and are delivered in the large Theatre or smaller Lecture-room elsewhere described.

The Practical work is carried out in the Laboratory of Chemical Technology, formerly the Laboratory of Chemistry, built by subscription in memory of Dr. Birkbeck's labours to advance education. This consists of a lofty room lighted from above, and having ample room for twenty-five Students. Adjoining is a Professor's Laboratory, also a combustion-room, a calculation-room, balance-room, furnace-room, lavatories &c. New provision made for the study of Pure Chemistry will allow this Laboratory to be used wholly for technical studies.

The students in this Department, who have previously made themselves acquainted with the methods, have also the use of the various rooms in the new building set apart for assaying, gas-analysis, water-analysis, combustions and for microscopic, spectroscopic and photometric observations.

In addition to the general libraries of the College, there is also a special library of works on Pure and Applied Chemistry for the use of Students.

The teaching of the Science of Engineering appears to have formed a part of the original scheme of the Founders of University College. As far back as 1840 the late Mr. Charles Vignoles was appointed Professor of Civil Engineering, a post which he held for some years. Until recently, however, it had not been attempted to do more than provide Lectures on different branches of Engineering, with instruction in Mechanical Drawing and in Surveying. The present extension of the building has enabled a very important change in this respect to be carried out by the establishment of a "Laboratory" in connexion with the Engineering School, an institution which differs in some important respects from anything which has hitherto existed in this country. In explaining the nature of this Engineering Laboratory, it may be stated, in the first place, that it is believed that no college education can supersede, for the young engineer, that practical training which he must necessarily obtain somewhere, and which can only be properly obtained on works or in the workshop or office. It is not therefore attempted to do any thing which can render unnecessary a pupilage, or its equivalent, in the profession. But there are some matters of a more or less practical kind for obtaining a knowledge of which an ordinary pupilage seldom affords any opportunity, but which are of very great importance to the engineer in after life, and which at the same time appear to fall entirely within the province of an institution like University College. These matters may be summarized in a few words as being *the experimental methods which serve for determining the mechanical data employed in engineering calculations*; and the main object of the Engineering Laboratory is to give systematic instruction in such experimental work. The importance of this

institution is twofold. In the first place the exact value of any numerical results derived from experiment and the limits within which they may be safely trusted can be rightly estimated only by those who have some practical and personal acquaintance with experimental processes of the kind employed in obtaining these results. This is especially true of data which, like many of those on which engineers are compelled to rely, are derived from experiments that have either been imperfectly made or imperfectly recorded, or which, although they may have been properly carried out, have yet been made for some special and limited object, instead of as part of a general scientific enquiry. In the second place, engineers are continually called upon to deal with questions in regard to which some essential data are altogether wanting; and they are therefore very often compelled to make special experiments for their own guidance. It appears certain that in such cases the probability of obtaining accurate and trustworthy results will be greatly increased by a previous practical training in the art of experimenting, and in the methods already successfully adopted in other cases in dealing with similar questions.

The Laboratory-work proper is intended for Senior Students. But there are many advantages in providing somewhat similar work for Junior Students, so far as it is possible to do so; and this is done in the WORK-ROOM, which is fitted up under the same roof as the Laboratory. The work here forms a preparation for the work in the Laboratory, and at the same time it aids in many ways the class-work of the students, while it helps to develop their constructive mechanical skill. It is divided into three sections, the whole being under the general charge of the Professor of Engineering. One section, under the direction of Dr. Oliver J. Lodge, forms a Junior Practical Course of Physics. The students scheme out and construct simple physical apparatus, and are taught how to experiment by means of the apparatus they have made. The work of a second section, under the direction of Prof. Henrici, is connected with the classes of Applied Mathematics, and in it are constructed models of surfaces and mathematical models in general, apparatus for the mechanical description of curves, and other similar instruments. In the third section, under the direction of Prof. Kennedy, are made models of different mechanisms or machine details, models illustrating the distribution of stress in bridges and other structures, the arrangement of different types of valve-gear, &c. Simple experimental apparatus is also made, and mechanical experiments conducted by help of it.

The erection of the North Wing of the College has set free a considerable space in the basement of the old building for the purposes of the Engineering Laboratory, which, with the Workroom, now occupies a large room about 90 feet long by 44 feet wide and additional space adjoining it. The laboratory contains a large testing-machine, capable of exerting a maximum pull of 100,000 pounds (or nearly 45 tons), and arranged so as to be capable of either stretching, compressing, or bending the specimen to be tested; specially-arranged appliances for making accurate measurement of extension, compression, deflection &c., down to $\frac{1}{10,000}$ of an inch; machine-tools of various kinds; specially designed apparatus for conducting experiments of the kind just mentioned, as well as the necessary tools and appliances for

working in wood and metal, preparing apparatus and specimens, along with standard guages and measuring apparatus ; a small engine, &c. The apparatus is being added to from time to time, as circumstances permit. The chief addition which it is now hoped to make as soon as possible is an experimental steam-engine, designed specially to enable the students not only to make complete engine-tests, but also to carry out such tests under very varying conditions—with high or low pressure steam, with various grades of expansion, with or without compound working, &c. An experimental boiler would, of course, be connected to the engine, and tested along with as well as separated from it.

It remains only to add that the scheme for an Engineering Laboratory which has here been sketched out ; and which was started last year at University College, and has this Session been much enlarged and developed, has already received the very cordial approval of many of the most important and best-known engineers in the country, as a scheme likely to be of the greatest value in the training of young engineers, and as supplying particular branches of practical work which it has hitherto been exceedingly difficult for them to get elsewhere.

On Plate 1, is shown a design for the further enlargement and completion of Proposed Com-
the fabric. If this be carried out the effect would be to give a third floor over the pletion.
whole of the main structure, which is at present only two stories in height. It would also allow of making the present upper storey of the school square and of giving it the direct north light which is so much required for drawing classes. The return ends to the wings would also afford large additional accommodation for College purposes, whilst the completion of the stone screen from wing to wing would form the quadrangle as suggested by the architect's original sketches.

The whole cost has been estimated, and will be a little over £100,000—less than has been readily obtained for like purposes in Manchester, in Edinburgh, and in Glasgow. In Dundee one donor alone offers for University purposes more than this sum. Of the whole outlay necessary for the completion of University College, London, the section of the North Wing now opened will take £35,000, towards which about £21,000 have been already subscribed.

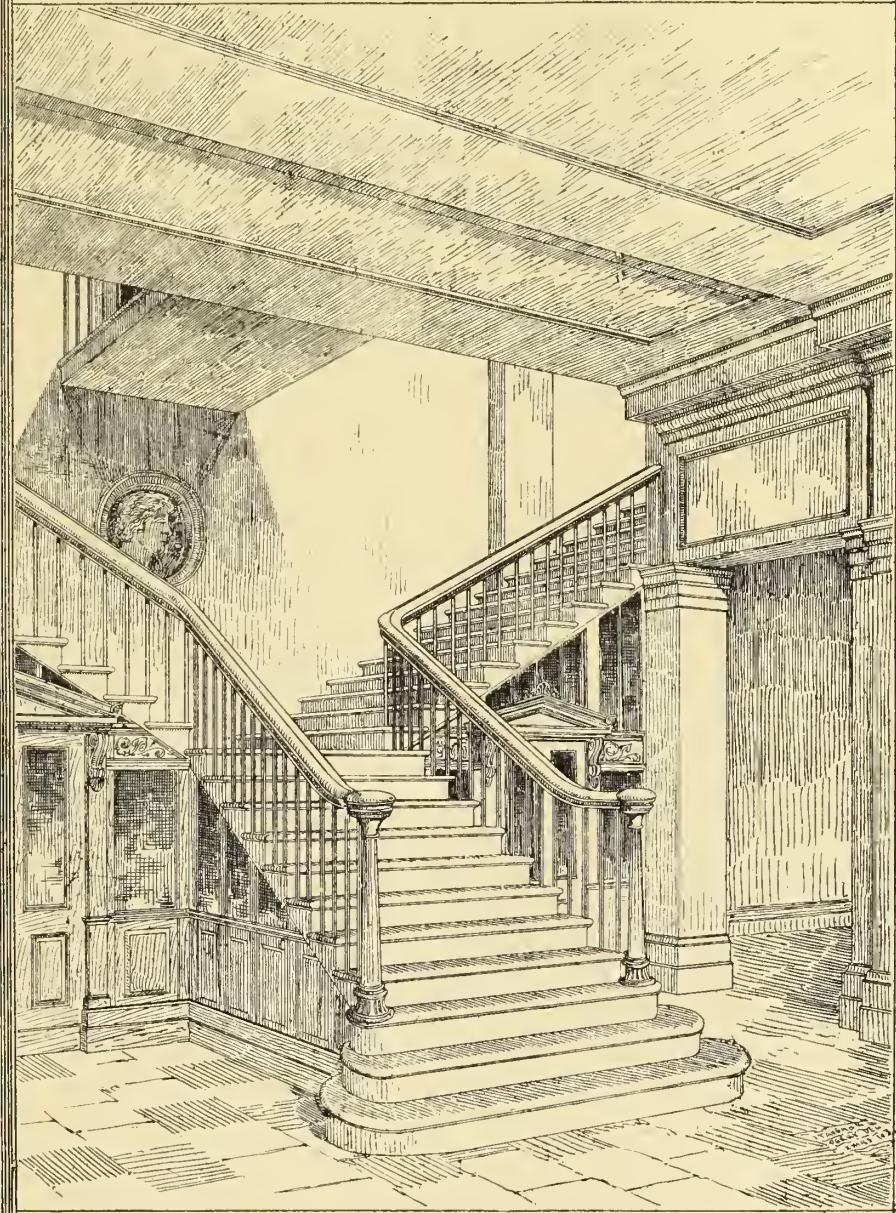
How far the design here shown would have agreed with the ideas of Professor Wilkins it is impossible to say, as he left no complete working drawings for the portions not erected under his direction. A number of engravings of the building as proposed to be completed, are, however, extant of the same date as the erection ; but there is a considerable divergence between them in the detail of the work. For instance, in an engraved design, signed by the architect, and dated 1828, there is an arrangement of coupled pilasters which does not occur in the main building ; whilst an engraving of the same date, published in the "London Encyclopædia," and another one published in the "National History and Views of London," 1832, show a continuation of the arrangement of pilasters as originally built. But whilst there are such differences in the details of the surviving designs as to make it difficult to say exactly how Professor Wilkins would himself have completed his building, there is no doubt that he intended to build out wings from each end of the main structure to form three sides of a quadrangle.

To complete its Buildings on the original design, and provide for extension, the Council have no Building Fund and no endowment to fall back upon. They have never received any subsidy or gift, whether in land or money, from the State. Numerous and splendid gifts have been made to the College, by private persons, of libraries, philosophical instruments, scientific and fine art collections. Funds amounting on the whole to about £200,000 have been given to the College for special purposes, about one half being held in trust for the Hospital, and by far the greater part of the remainder for the endowment of scholarships and prizes and of a very few of the Professorships.

A large addition is now made to these funds by the will of Sir Francis Goldsmid, who has left £40,000 to the College and £10,000 to the Hospital in trust for investment. Except the income of this £40,000, and about £850 a year, the annual produce of a part of the above-mentioned trust funds, there is no endowment received by the Council which is not subject to special destination out of their control. The prospect of an increase, with larger buildings, in the cost of management, and other claims, must prevent the Council from charging their limited income with the interest and sinking fund of a heavy building debt.

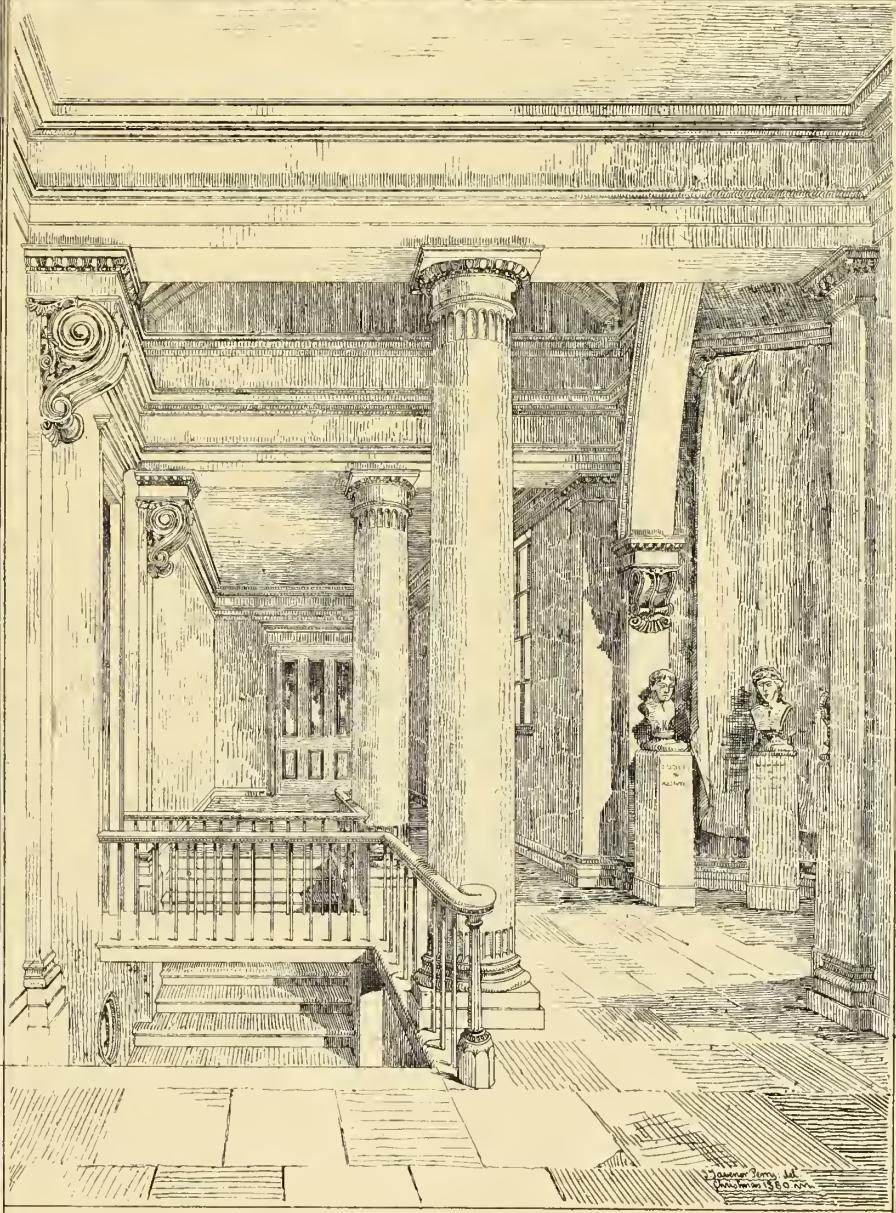
An institution for imparting the higher education, even if it can be expected to pay its current expenses—a position which experience shows to be exceedingly doubtful—can never provide out of the payments of present students for its permanent buildings and extensions. The Council have therefore determined to appeal to the munificence of those interested in the promotion of the cause of Education. They appeal to the tried attachment and interest of the old friends and supporters of the College; to those who desire to see the benefits of the highest education brought within reach of a much wider circle of students; to Londoners especially, and to the members of great City Companies, who desire to remove from London the reproach of being behind a dozen towns of England and the Continent in the splendour and efficiency of their University institutions; to the promoters of scientific and technical education, in the interest of the future engineers, practical chemists, and manufacturers of England; to the promoters also of better education for women, to whom University College is perhaps the most important of the teaching institutions which have as yet opened their doors; and to the advocates of Fine Art as a department of Education, for the realization of whose ideas the College has provided so successful an instrument.

UNIVERSITY COLLEGE LONDON.
STAIRCASE TO NEW SLADE SCHOOLS.



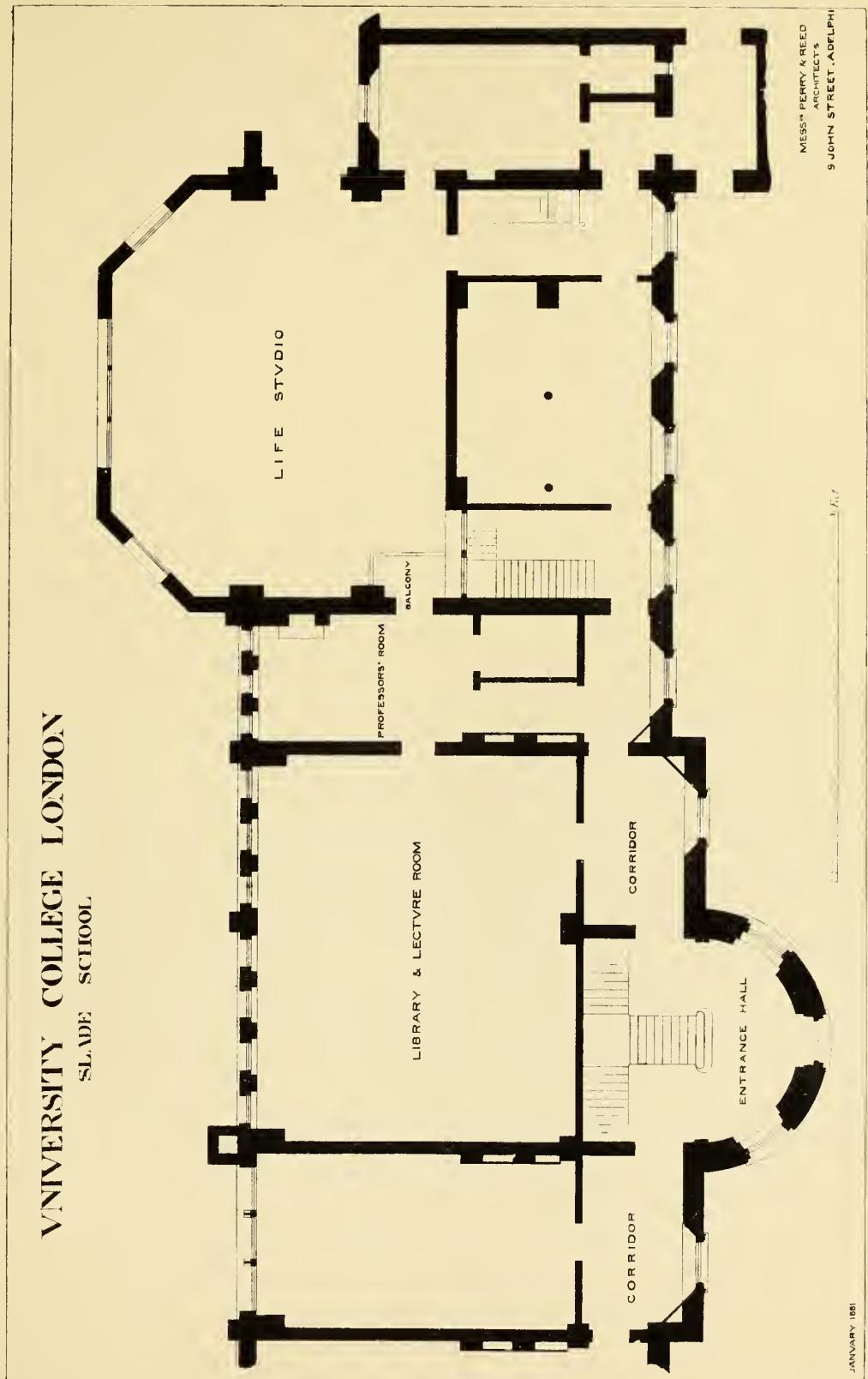
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UNIVERSITY COLLEGE LONDON.
STAIRCASE TO NEW SLADE SCHOOLS.



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UNIVERSITY COLLEGE LONDON
SLADE SCHOOL

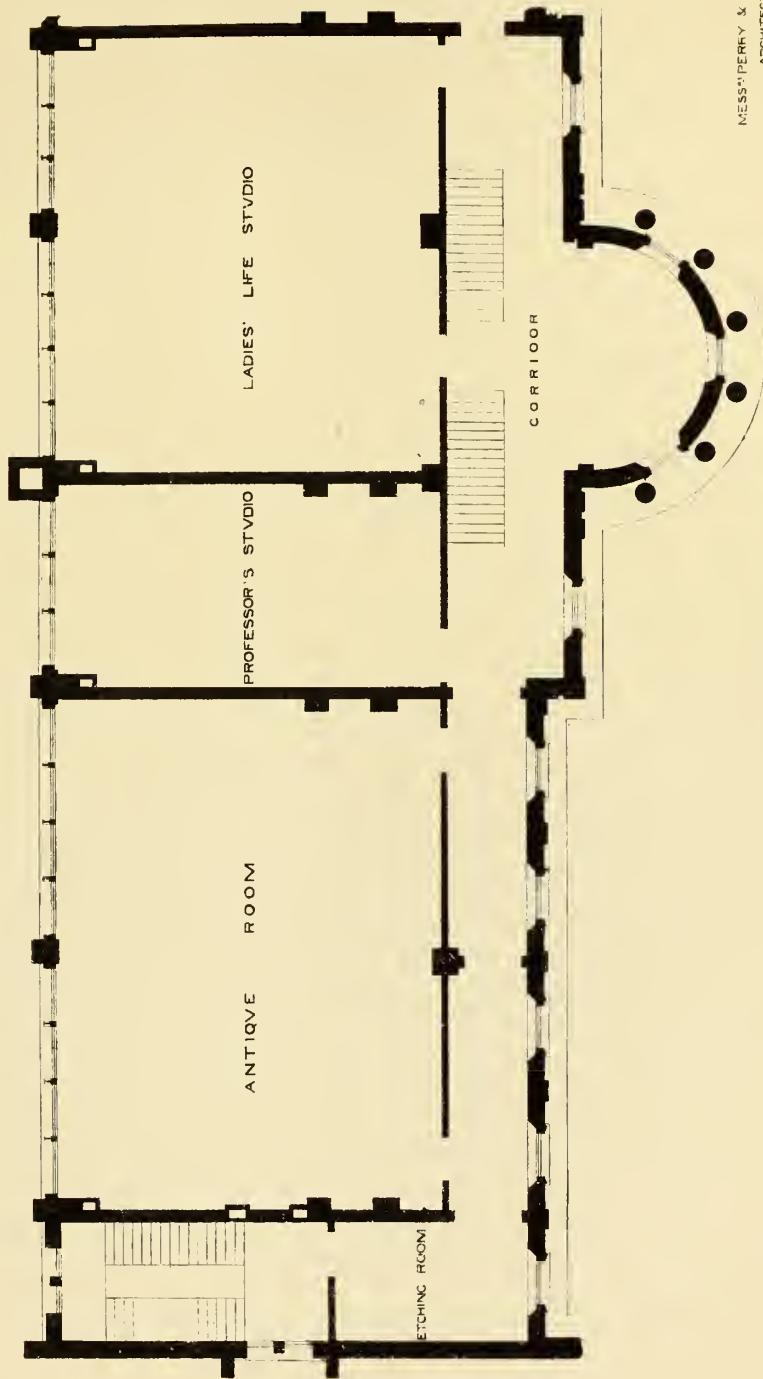


JANUARY 1881
Plate N° 4

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UNIVERSITY COLLEGE LONDON
SLADE SCHOOL

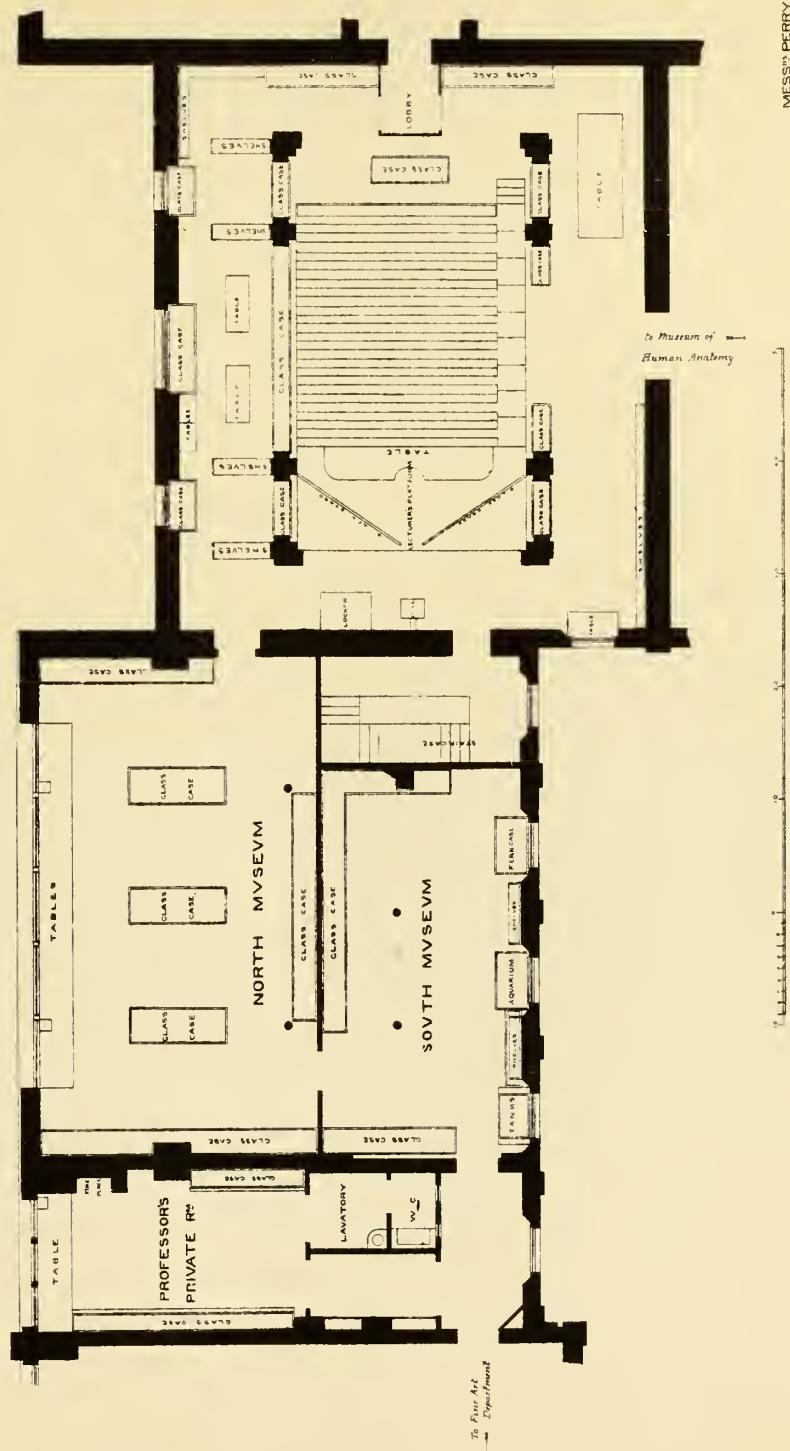


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Plate No 5

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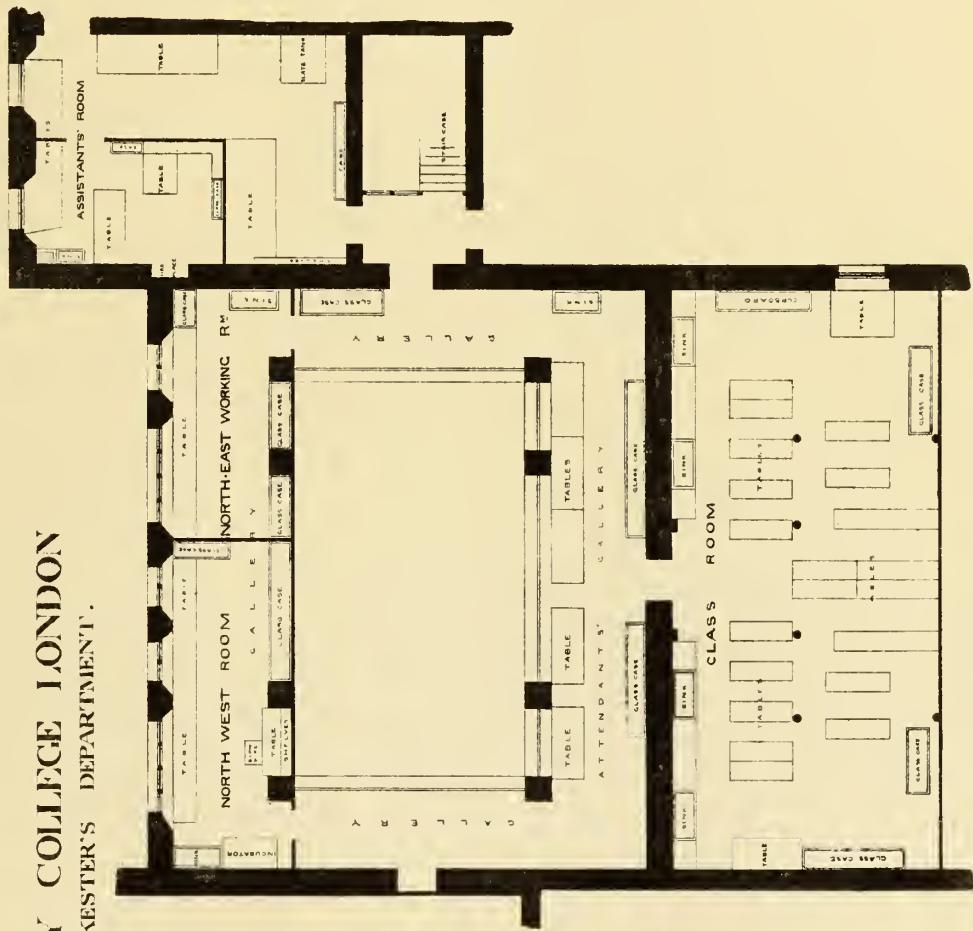


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Plate No. 6.
JANUARY 1881.

SCALE OF FEET

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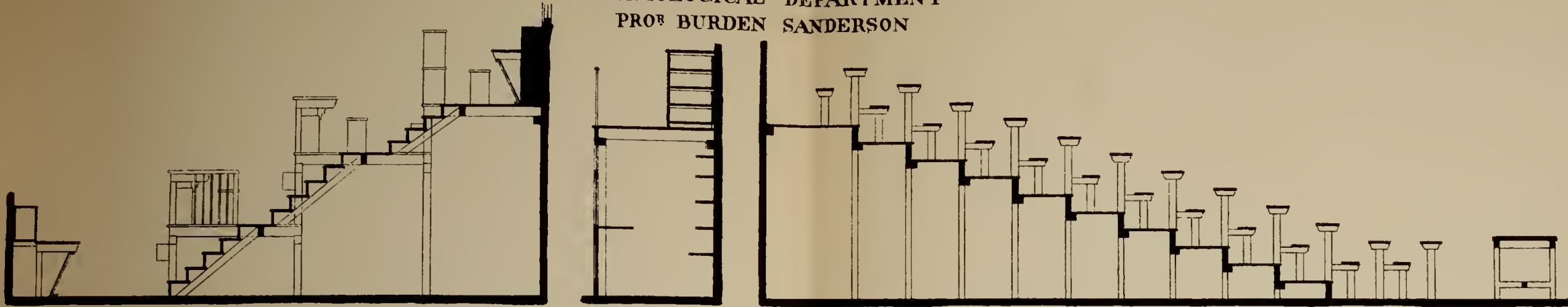
PLATE N^o 7
JANUARY 1881

SCALE IN FEET

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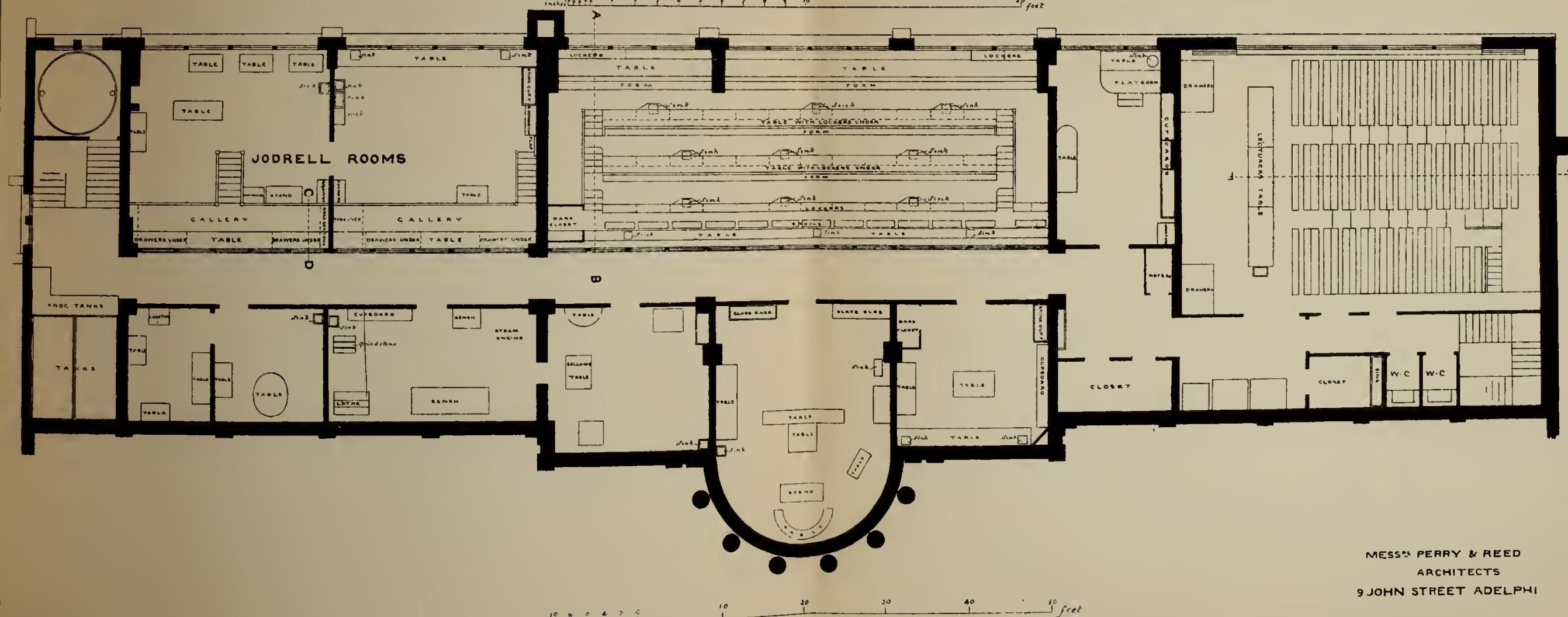
PHYSIOLOGICAL DEPARTMENT
PRO^R BURDEN SANDERSON



SECTION A-E

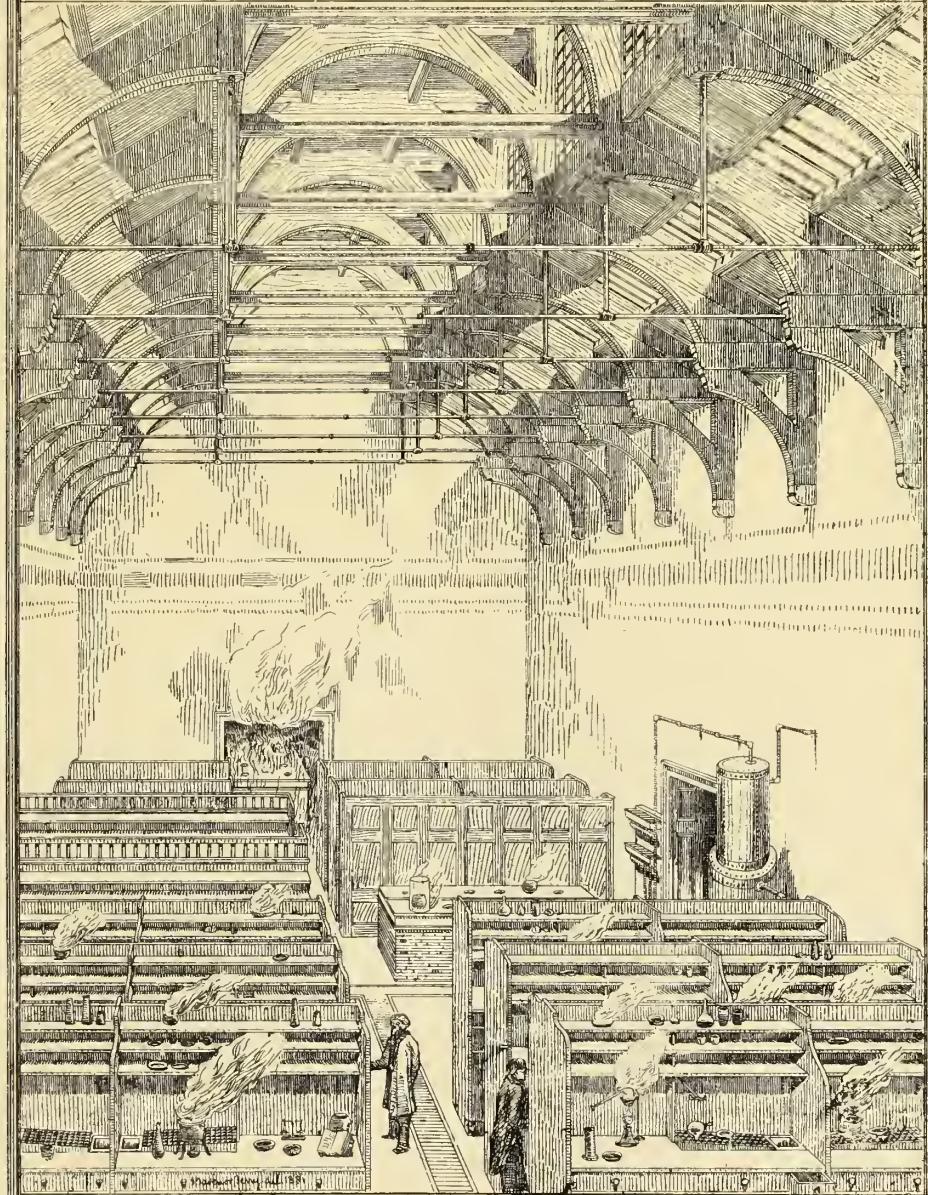
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SECTION E -



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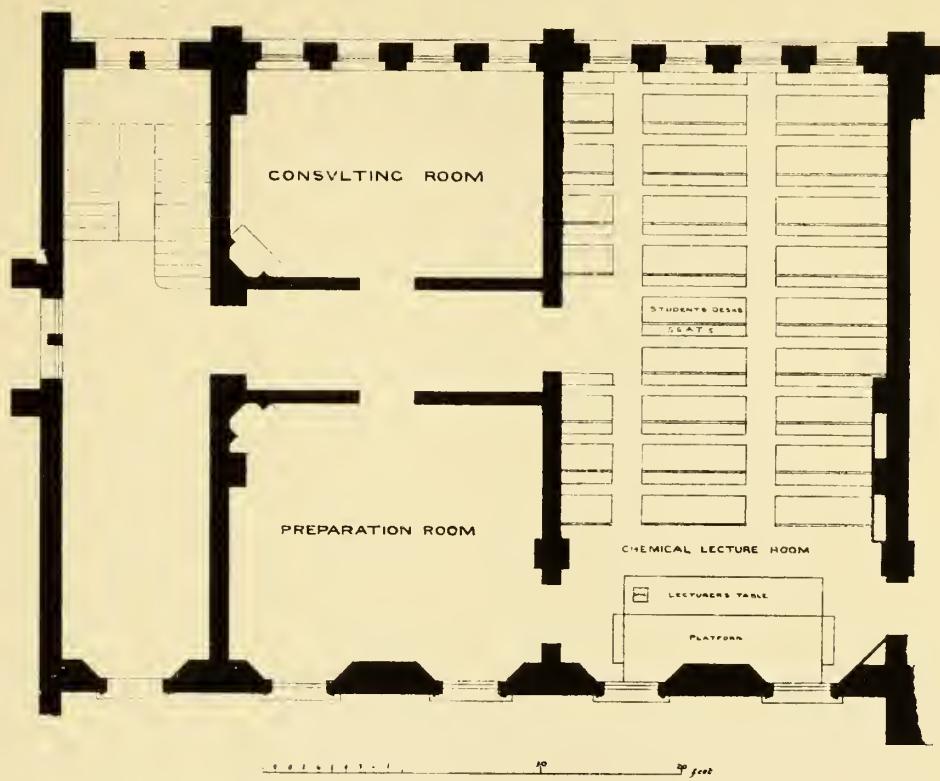
UNIVERSITY COLLEGE LONDON.
NEW CHEMICAL LABORATORY.



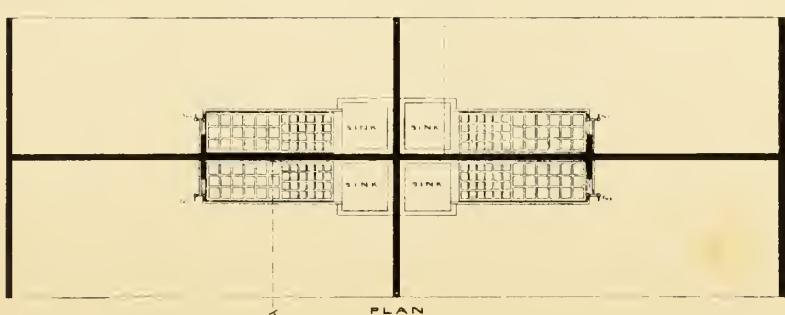
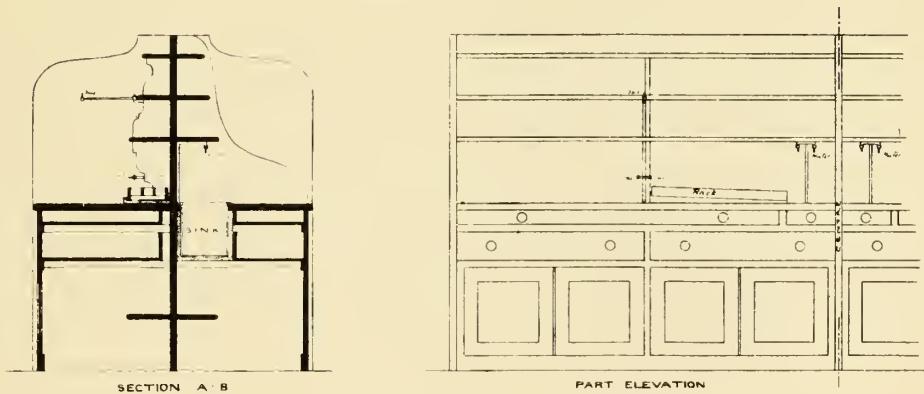
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UNIVERSITY COLLEGE LONDON

CHEMICAL DEPARTMENT
LECTURE AND PROFESSOR'S ROOMS.

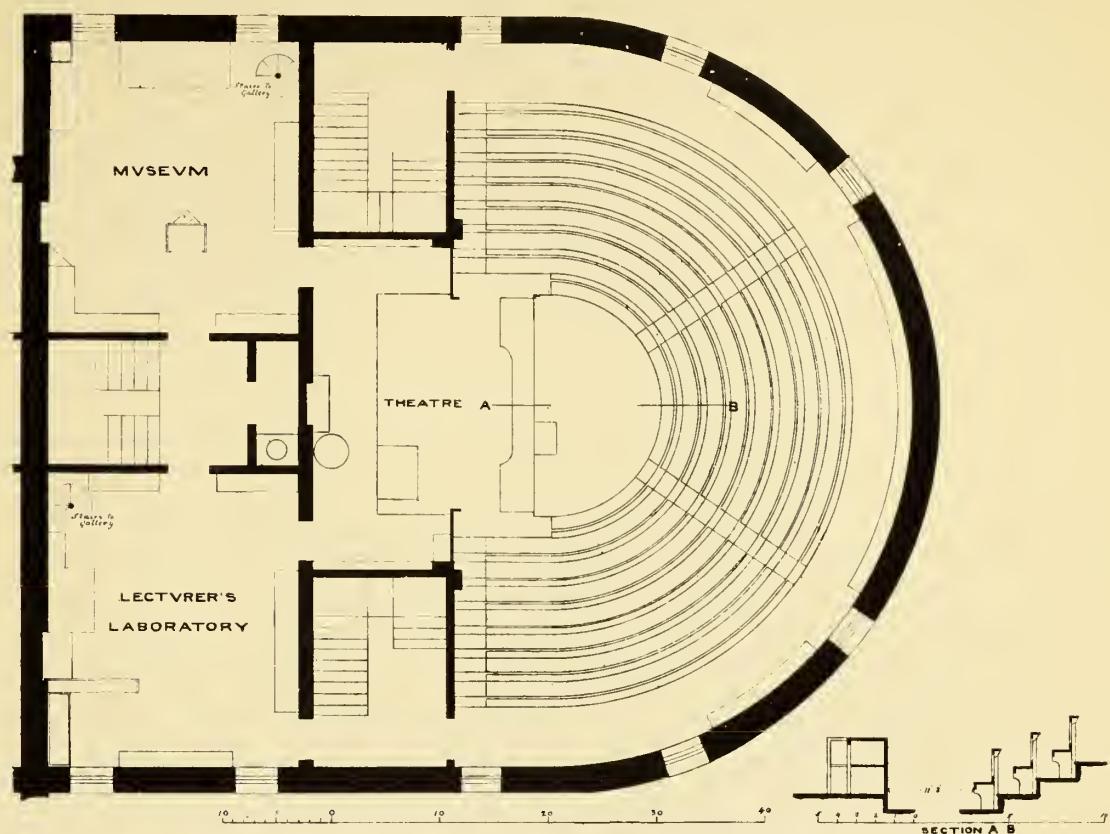


CHEMICAL LABORATORY
STUDENTS WORKING DESKS.

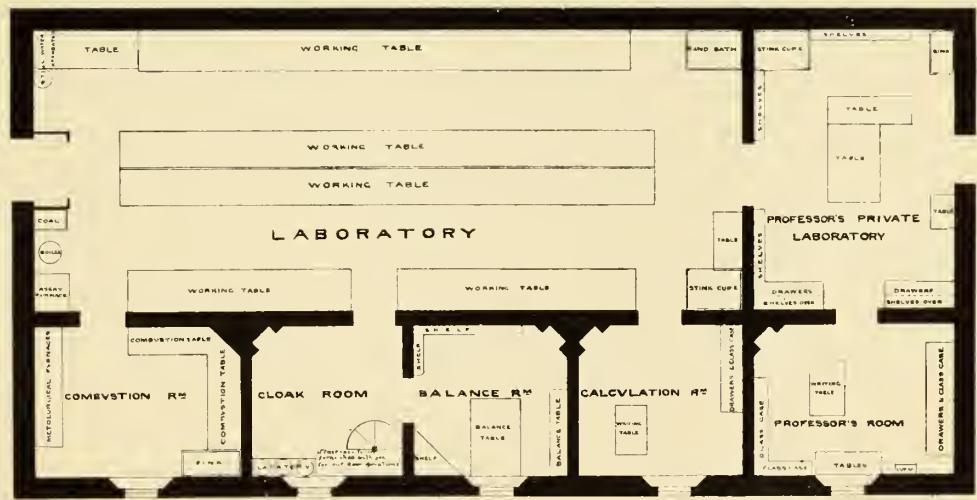


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BIRKBECK LABORATORY OF CHEMISTRY.

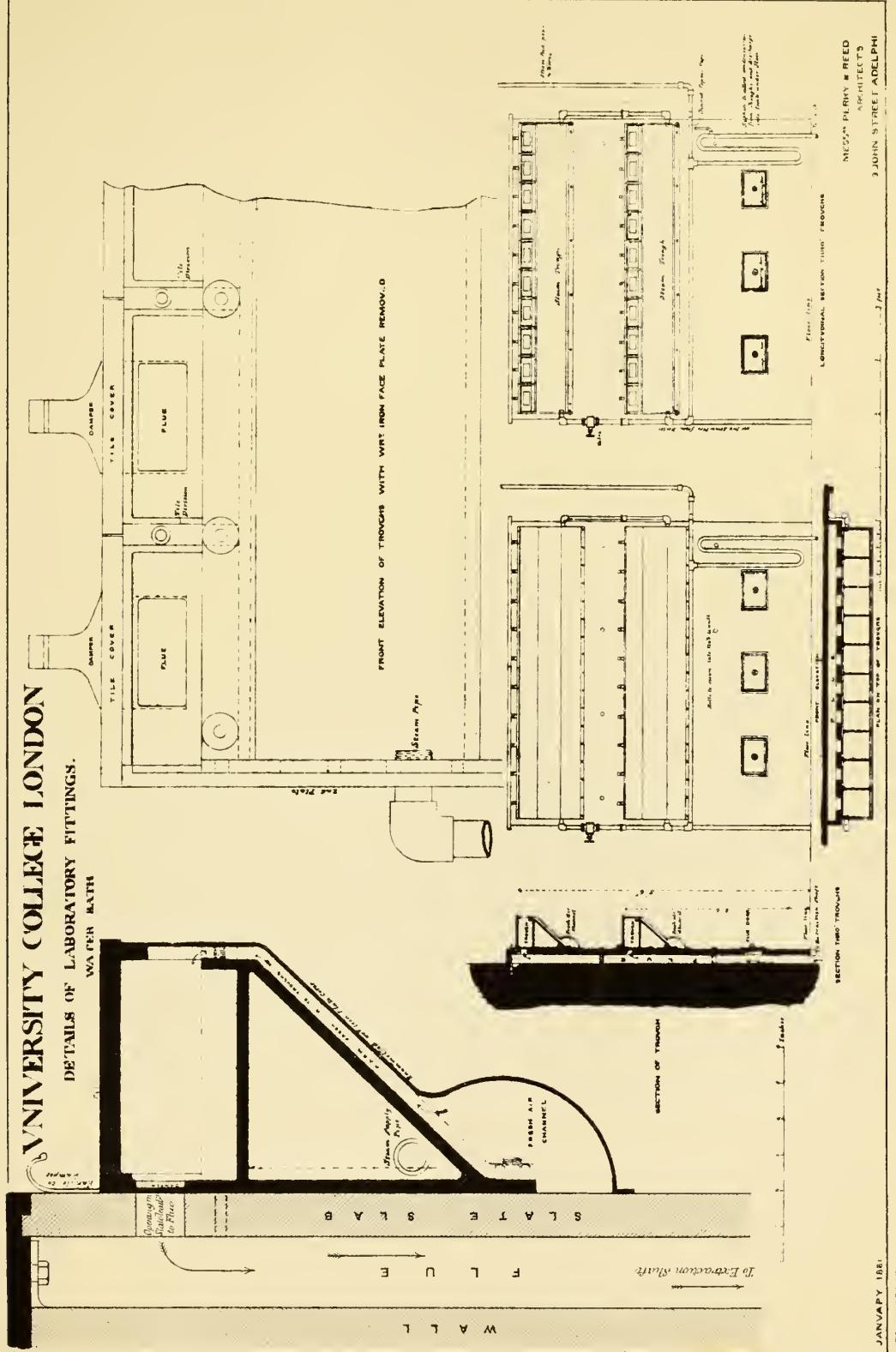


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DETAILS OF LABORATORY FITTINGS.

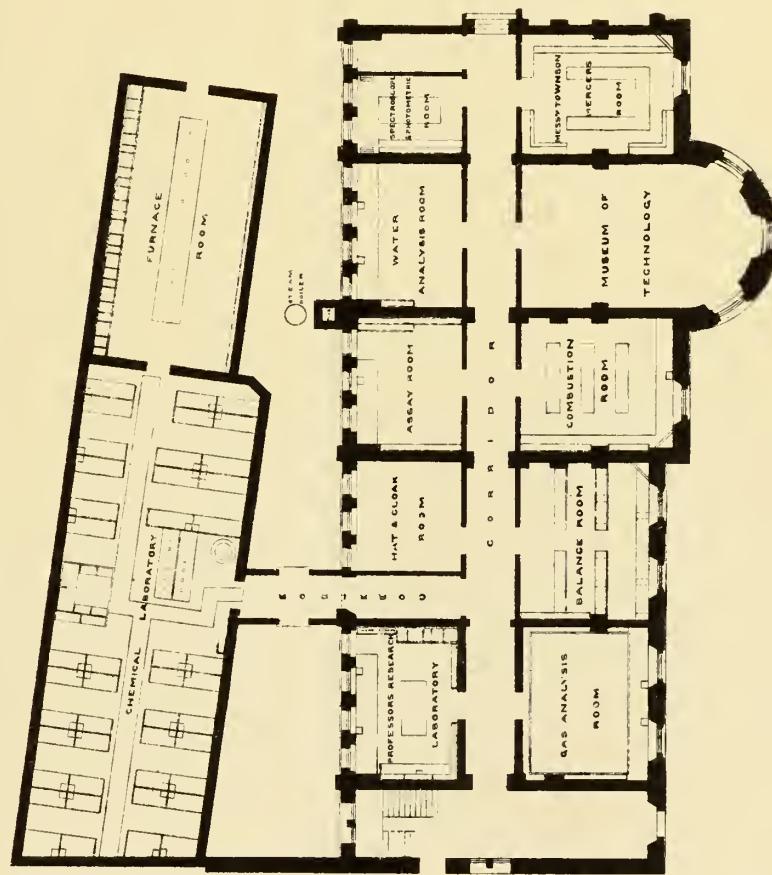
WATER BATH



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CHEMICAL DEPARTMENT.



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Plate No 13.

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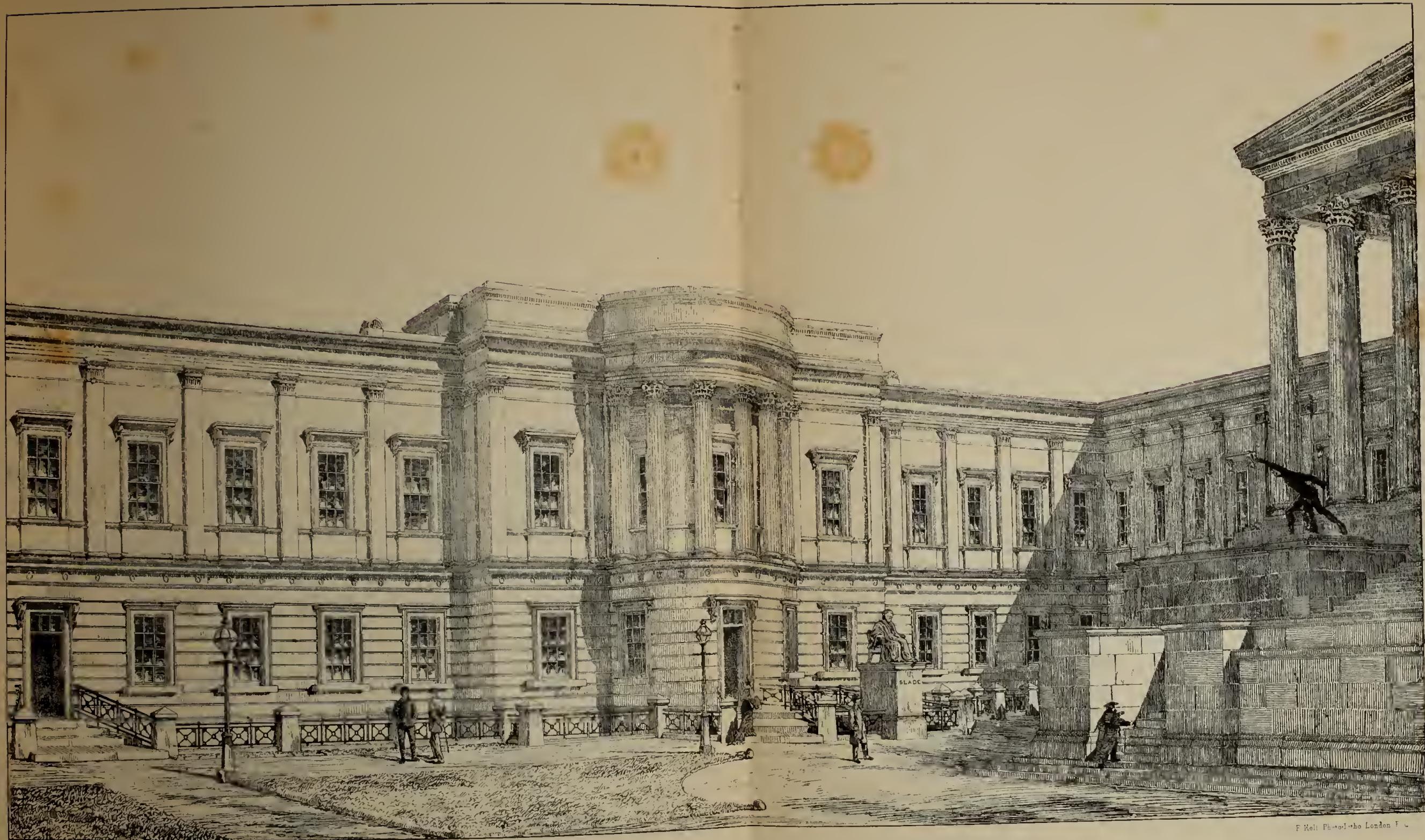


Plate No 14.

UNIVERSITY COLLEGE LONDON.
NORTH-EAST SIDE OF QUADRANGLE.

